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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,228	12/30/2003	Jung-Rak Yun	11038-129-999	9662

24341 7590 03/18/2005

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EXAMINER

LE, DAVID D

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 03/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/749,228

Applicant(s)

YUN, JUNG-RAK

Examiner

David D. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 2 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 6 is/are rejected.
- 7) ☒ Claim(s) 3-5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/30/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This is the first Office action on the merits of Application No. 10/749,228, filed on 30 December 2003. Claims 1-6 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
 - Information Disclosure Statement, received on 12/30/03
 - Foreign Priority Documents, received on 12/30/03

Election/Restrictions

3. This application contains claims directed to the following patentably distinct species of the claimed invention:

- Species A: Figs. 1-3; and
- Species B: Figs. 1 and 4-5.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

4. During a telephone conversation with applicant's attorney, Thomas D. Kohler, on 03 March 2005 a provisional election was made with traverse to prosecute the invention of Species B, Figs. 1 and 4-5, claims 1 and 3-6. Affirmation of this election must be made by applicant in replying to this Office action. Claim 2 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

6. The abstract of the disclosure is objected to because it contains legal phraseology "means". Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,024,187 to Takeda et al. in view of Japanese Patent No. JP363262074A to Onuma.**

Claims 1 and 6:

Takeda (Figs. 1-2; column 2, line 46 – column 5, line 49) discloses a steering actuator (100) comprising:

- A housing (104) inherently fixed to a vehicle body;
- An electric motor (101) having a stator (106) internally fixed to the housing and a rotor (107) rotating relative to the stator when an electric current is applied;
- A steering rod (100a) having a first end and a second end (see Fig. 2);
- Wherein the steering rod penetrates through a center portion of the electric motor, and the first end of the steering rod extends out of the housing for connection to a tie rod (17 or 18);
- A movement conversion means (Fig. 2, being the combination of elements 108 and 109) operably associated with the steering rod for converting rotating movement of the electric motor into linear movement of the steering rod;
- Wherein the movement conversion means includes:
 - A ring gear (108b) having an inner peripheral surface, the ring gear being internally fixed to the housing;
 - A plurality of planet gears (108c and 108f);
 - Sun gears (108a and 108e);

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- A worm like gear (109a); and
- A rack (109b).

Takeda lacks:

- Wherein the electric motor is an ultrasonic motor; and
- Wherein the electric motor includes a piezoelectric ceramic.

Onuma (Figs. 1-2 and the corresponding descriptions) teaches a composite motor comprising two ultrasonic motors (A and B) having piezoelectric ceramic plates (12, 13, 20, and 21) for positioning planetary wheels.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takeda such that the electric motor 101 is an ultrasonic motor, in view of Onuma, in order to precisely control the positions of the planetary gear at relatively high speed.

Allowable Subject Matter

9. Claims 3-5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Rieth et al. (U. S. Patent Application Publication No. US 2004/0026158 A1) teaches a vehicle steering system as shown in Figs. 5-9.
- Watanabe et al. (U. S. Patent No. 5,595,089) teaches an actuator for steering rear wheels comprising a trapezoidal screw.
- Bell et al. (U. S. Patent No. 6,554,094) teaches a method and a system for independently controlling the steering of vehicle wheels, as shown in Fig. 1.
- Menjak et al. (U. S. Patent No. 6,705,419) teaches a drive-by-wire steering system as shown in Fig. 1.
- Nakano et al. (U. S. Patent No. 6,719,088) teaches a steering actuator as shown in Fig. 5.
- Kielar et al. (U. S. Patent No. 6,637,540) teaches a steerable drive axle with electrically-powered steering apparatus as shown in Fig. 3.
- Magnus et al. (U. S. Patent Application Publication No. US 2002/0189888 A1) teaches as steer-by-wire handwheel actuator as shown in Fig. 6.
- Shibuya et al. (U. S. Patent No. 5,210,651) teaches a motor driven retractable outside mirror for vehicle using ultrasonic motor (17) and planetary gear set (31).
- Boyer (U. S. Patent No. 5,921,344) teaches an electric steering system as shown in Fig. 1.
- Saari (U. S. Patent No. 4,576,057) teaches an improved nut-and-screw type device for converting rotary input to linear output, as shown in Fig.2.

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- Serizawa et al. (U. S. Patent No. 5,251,135) teaches a steer-by-wire control system as shown in Fig.3.
- Dietrich et al. (U. S. Patent No. 4,926,708) teaches an apparatus for converting rotary motion into axial motion as shown in Fig.2; wherein the rollers are angularly positioned 60 degrees apart.
- Japanese Patent No. JP402159984A teaches an ultrasonic motor as shown in Fig. 1.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690 or 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830 or 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Charles A Marmor 3/14/05
CHARLES A. MARMOR
SUPERVISORY PATENT EXAMINER
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